# **Aviation Week** & Space Technology 75 Cents

November 18, 1963

Syncom 2 Relays Broadband TV. Telemetry Data

Polaris A-3X Fired From Submarine



A McGraw-Hill Publication



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VOI SHAN MANUFACTUREING COMPANY - 8462 Regules St., Calver City, Call. - A CIVISION OF INSI CONFORMATION

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Guessial Controls Corporation

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AFROSPACE CALENDAR

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Measures AGASTAT was / delay/relays are serving in every type of wrain

TIMING INSTRUMENTS

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AVERTION WHEE & SPACE TROUNDROOM, Navember 15, 1913

# serves government and industry in space and defense

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#### AEROSPACE CALENDAR

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Tektronix Inc.



#### FASTER, SIMPLER PRODUCTION-RUN TESTS WITH NEW DIGITAL READDLIT DSCILLDSCOPE

FOR A DEMONSTRATION.



### SOLIO ANSWERS TO FLUID POWER PROBLEMS

sistems management casability, backed by solid financial

LIONEL-PACIFIC, INC.

#### AEROSPACE CALENDAR

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An 15-76th Armed Structure and Mate Am 1945-International Conference & En-

Mer II Heddith Annual Natural Arm



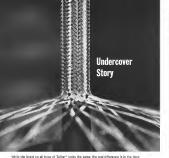
#### Primary heat exchanger source: .lanitrol

The long range high performance Boustes DC & with tan engine uses four

Whin you need a heat exchanger of an oil cooler, Janitro's approach to



JANITROL AERO DIVISION Midland-Ross Corporation



Color shows that difference. Resistoflay Flooroflay' .T Hose is black due to its formulation. For over ten years this method has produced hose that outlasts and outperforms fluorocarbon resin hase made by any other process. Only Resistoficy and its licensees employ this patented carbon black process. Always look inside Tetlon hose, If it's black it's best.

## RESISTOFI FX



THE MEY to this highery and reliability. The unique adver-

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Di/An Controls, Inc.





#### TROUBLE TRACKER

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99.53% RELIABILITY per 1,000 hours over first 10,000 hours of operation at a

95% CONFIDENCE LEVEL

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The Most Trusted Name in Electronics







# MB introduces SWEEP RANDOM— a new, low-cost method of random vibration testing

MB Electronics now offers intry the Starres Band SHILE B.
DON system. This new technique are readent whether in territor is design to create attenues and acculent at all feeds intelled to thous predict at all feeds intelled to thous predict the cases expensive with the students text. It is easy to age, and assespences enough to be a with the anniblest sensibilities.

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and shoose of system with tright be given a find qualification tool by wide band ensime feelings in For more dealled information of the SWEEP HANNIN system write





If you want to pass this Beech missile target, you'd better be doing Mach 8-or better!



Now from America's first family of missile tarasts. comes the namest assemple of Beech "Imaginalty": born Mech. 32 to over Mark 7, with altitude conshibites from one APRY MAN SHA "Underso" and the securi powered U. S. Newy AGM 37A (ED25-1), are already being unwheed in quantity. The represent a modB-1), are among using proused in quantity. The AQM-07A is appaids now of speeds above Mach 3. If post boday's most advanced weapon materials a realisatic challengs to their This hird of uncounted experience in depotingles and talking



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**Aviation Week** & Space Technology

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Industry Observer

U. S. Business & Unitry Place Strometts-August, 1963 

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AVATION WERE & SPACE TECHNOLOGY, November 16, 1915



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#### EDITORIAL Rosier Horizons

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#### A STEROIDATEA

## ADVANCED SOLID STATE AMPLIFIERS FOR YOUR CONTROL AND INSTRUMENTATION APPLICATIONS





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#### WHO'S WHERE

In the Front Office

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#### INDUSTRY OBSERVER

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NASA, may support formshirty demonstration of a find-length, 200 m-dm, and populated faster (AW Nov. 4, p. 28), such modest fooding # USAF).

hat DOD meas distantined to extend the prospect because these as no Air Force expenses if no solid booties of the same. P.Douglas Aisstuli Co. will sensive a mirrorente contant from the Navy to conduct a mesone melgiol conhistion of the supercoast conduction most (Conta) cross(v) The second critica from an associated appearable Disaglas

such unit mention applicably and a lighter type plane to be used mainly for close report ving in the same harmy capable as 10 EMF plane as a solitone spice visition with logistic cargo and proceed speccosit. Plant to all Loudshead Propulsion Co's 1961s, a post regiment more a right to be fetting where the content will be consisted in law April, 1965. The second but firms under a second measure for the control visition.

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Motion study, Induced rotation of a Manned Orbital Research Laboratory under study by NASA. which would envide artificial gravity for its crew, could also introduce unwelcome twist, tumble, spin and

bility. It Records orbital times up to a year are under study, a manual station presents a unique challenge ta cantrol. Sperry expensence in gyouscapins, serceptor control, un-



#### - Washington Roundup -

Administrator Issues E. Webb of the National Appropriate and Space Administra-Trian 3 is desirated to not 28,000 lb. into earth orbit and could become a stradard setbelies to obtain a same efficient emprior of technical exeridate. New or traffic

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Military Dollar Impact

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New Ranger Shot

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#### New 12,000-Mi. Cargo Aircraft Is Sought USAF drops CX-4; CX-X concept calls for extended,

unrefueled, nonston flights with 180,000.lb, nextend

Washington-Arc Force has not its new at elobal mobility by unaine a the contraental United States. This concept is called the CXX openhanal resupercent (NOB) for the CXA response (AW Cer. 21 in 35).

\* Delense Secretary Robert S. M. \* Proclause of Lockbert C-130 and of the high brown rate cause: Engine Makes transport secret will recent chauted that powerflast devicement.

a Decision to fulfill the military sensing · Materials Increased use of light-

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DOD Relents: Air Force Seeks Pilots Waterston-Art Faur has foully appropriated Delawar Society Robott 5: McNa

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#### Some NASA Funding Restored

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#### Only Six NASA Payloads Orbited in 1963 By Alfred P. Alberrdo

Washington-Only six of the 40 major satellitis and probes scheduled in This year's branch activity reflects NASA's most difficult neural unce

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1964 NASA Launch Schodule

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Missile 'Pack' Tests Two schemental perfect rotons

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Toxic Hancels Study

**USSR Launches 21st** In Cosmos Program

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Czech Agricultural Aircraft Designed for Good Visibility has about all the acceptant Conductions Conduct YEAT for the wornshood second CAW Seet. 23, in 251 shows the code of short forward and both for most over the most makelity. Some bosons is believed the cockent, which alones the policy between it and the engine.

#### Controversial Australian Order For F-111 to Total \$125 Million

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ANATION WEEK & SPACE TECHNOLOGY, Neverdor 15, 1962

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#### Worldwide Comsat Frequencies Allocated By Cecil Brownlow

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French VTOL Plans

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**News Digest** 

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#### AIR TRANSPORT

### Pan American Is Awarded Tahiti Route

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Markup Shows DC-9 Cockpit Arrangement

Curbot worker of Darete Servet Co.'s DC.9 shorthood jet transport shows become

#### TWA Orders Eight More SSTs

#### Northeast Leases Jet Equipment. Plans 18 Daily Flights to Florida

New York-Northeast Authors is Aug 5, p. 42) sate the U.S. Court of Offsett, vice persident of traffic and unless The around will return their TWA

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Air Union Meeting

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Senate Unit Approves SST Funds

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ARE INDIA INTERNATIONAL IS now from its on Borney 1975 on swenge of 11 hr. daily, a top mark secons should nevered by Reli-Royce County engines. Mantenance work on engines as performed at Ac-body's everbed for that opened fire year.

#### Air-India Pushes Route, Fleet Expansion

By James R. Ashlock Sepher-Arrinda International, self-reflecent in the paratemeter and

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Reduced TEO Costs



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East first officers here fieled to pass



# Bonneville Nationals: 103.56 mph. Yet a SAAB engine has only 3 cylinders and takes oil in the gas tank. Strange.

NI care that rice at Bonneville have specially prepared engines. So did SASE Bescally, though the engine is the serie. If is a 2-strake engine with no values and celly 7 basic moving parts. That's handwall fever has conservational reviews history and handwall fever some of feature.

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## SHORTLINES

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▶ Federal Aviation Agency will begin moving with the two bandquarters and workerd. The new hashing, founds at 300 hadependent Are, S. W. in Washingham, will home hadepoint office personnel rades one med for the first bine. Agence, one mentiones was an one deflicent homogen or Washing.

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private Softwest Actions reported not covering of \$1.6 authors for the fact note months of 1945, a \$275 recoverone the same penal list year Revenues not 17% during the compactive

#### AIRLINE OBSERVER

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Titanium SST concepts get rugged test on fabulous Phantom



#### Tumurrow's design problems being solved by today's Navy-Marine-Air Force Fighter

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"Flying over the icy wastelands, the frozen hull of the lads' strange craft suddenly cracked onen. We're decemed! cried Tom, eating to piness."

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THE INTERNATIONAL NAMES, COMPANY, INC.



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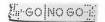
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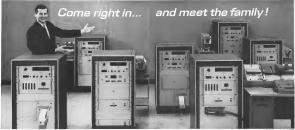
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# "Microwave tube research at Varian isn't always directed toward major

technical breakthroughs. Many companyfunded programs are aimed at less glamorous goals, such as increased tube reliability. To develop more reliable tubes, our R&D people must identify, understand and eliminate the causes of tube failure. Right now, we're doing promising work on field emission points, in hopes of climinating high-voltage breakdown in high-power tubes. effects. A research program on reliable cathodes led to a major breakthrough in vacuum technology, the invention of the Vacion\*pump. We use these pumps extensively in our manufacturing operations, and they have substantially increased the reliability of our tubes. This was after all, the basic obsective of the research program." Dr. Theodore Marena (left), Manager, Pala Alto Tube Division, Dr. Marena is shown here conferring with Varian research scientists. Dr. Ivor Brodie (standing) and Dr. Daniel Dow (right).

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AVAIRON WEST & SPACE TECHNOLOGY, Navember 18, 1943

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AMAZON WERE & STAGE DIOPROSOGY, November 16, 1969



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its Project ERCS (Experimental Reflector Orbital Shot) and orbited the world's first solar collector. Built by Allison, the reflector unfolded shall in source ... was been aligned with the sun's root for about one minute during each orbit by a single-one can tracking system. The intense heat halft up by the collector provided proof of crinciple data that energy collected in space can operate Allison research devices. like the Stirling engine and liquid metal cell. The ability to turn annuals into practice is another talent that beens our other programs. . . including starsfront pergapos and nuclear projects. . . on target







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WHATION WITH & SPACE TECHNOLOGY, November 18, 1993



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# LETTERS

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AVAILON WEEK & SPACE TECHNOLOGY, November 15, 1963

# DOW IT GAR! BE TOLD ...



Model H 5-11 is one of seven different Bell appalaromature electronics in available providing point rate proportions; to







# LIFTING-BALLISTIC REENTRY

Gemini, America's two-man rendezvous spacecraft, will utilize a reentry technique involving a combination of lifting and ballistic trajectories. After retrograde firing, the crew will position Gemini's off-set center of gravity with attitude control jets to reorient the dray vector and create a component of lift. This lift will enable the crew to precisely maneuver Gemini to any point in a landing area encompassing 28,000 square miles (more than three times the area of the state of Massachusetts). A paraglider will be deployed in later flights, enabling the astronauts to control their glide to a prepared landing field.

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